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ABSTRACT

Bruce Jilk, conference chairman for the American Institute of Architects' Committee on Architecture for Education Fall Meeting (Amsterdam, Netherlands, November 7-10, 2000) provides his views on the future of schools, school/community integration, and shared spaces with surrounding businesses. Mr. Jilk comments on Finland's Heinavaara Elementary School and the future of "have-not" urban schools. Also examined are the meaning of learning, classroom size, consciousness in learning, and the architect's role in educational leadership. Discussions on facility flexibility, risks of innovation, and the impact of the environment on learning are included. William DeJong provides a counterpoint. (Contains 21 references.) (GR)

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An Interactive Forum on Innovative Alternatives in Learning Environments

Randall Fielding

January, 2001

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Amsterdam Watershed

An interactive forum on innovative alternatives in learning environments
By Randall Fielding, January 2001

This forum sprang forth from the AIA conference in Amsterdam, November 2000. Support for this publication was provided by the National Clearinghouse for Educational Facilities. A print version of the article will appear in the January/February issue of *School Construction News*.

Bruce Jilk, conference chair, introduced the conference as a watershed event and the period from 2000 to 2010 as a watershed decade for educational planning. Bruce tossed out numerous "mind grenades," about the future of schools. A common theme involved schools that are closely integrated with their communities and share spaces with surrounding businesses, institutions and residences. Projects presented and toured included a school located above a drug store (pictured below), and another built beneath residential apartments.

Design Share invited conference participants to ask Bruce a follow-up question. Questions by 12 individuals from four countries were selected for publication. Dr. William DeJong, one of the most recognized educational facility planners in the United States, was invited to provide a counterpoint. Profiles, contacts and references are provided at the end of the publication.

Q Randall Fielding: *Bruce, you referred to the recent conference in Amsterdam, "Innovative Alternatives in Learning Environments," as a watershed event and the period from 2000 to 2010 as a watershed decade for educational planning. Why is this a watershed conference and decade?*

Bruce Jilk: As the conference name, "Innovative Alternatives in Learning Environments," suggests this event focused on schools that are outside the box. Most of these schools did not exist 10 years ago. For example, in 1990 the US did not have a single charter school. Now we have over 2000. Home schooling is one of the fastest growing educational industries. This is reflective of the larger macro-shift in civilization - from an industrial society to a knowledge society. The people who study this (Club of Budapest [1]) tell us we are beginning the decade of the "Consequent Phase" of this shift (which started

about 1860). That is to say the next 10 years are critical in forming the future. I took the liberty of renaming this the "Watershed Decade," a term I feel says the same thing only with a more optimistic connotation. Because the event in Amsterdam disclosed the aspects of this cultural change as it impacts the world of learning, it seemed appropriate to extend that title to the event itself, Amsterdam Watershed.

William DeJong: I do believe the decade 2000 to 2010 is likely to be a watershed decade. As Bruce has alluded, this watershed period may have started 10 years ago and is continuing into the first decade of the 21st century. Just to name a few, during the past ten years we have experienced the demise of communism, economic globalization, embracing the information age, the revolution of the communications industries and unprecedented economic expansion. At the same time we are experiencing significant demographic shifts and a wide recognition of the need to update the aging infrastructures of school facilities. Never before has there been the opportunity for change to occur. But will it? Will or should the change be incremental or revolutionary? Even though I am one who personally often supports revolutionary change, if history repeats itself, it will likely be incremental.

"in ten years we will likely still have the same box, found new ways to rearrange the boxes, made them look better, made them more comfortable, and put a lot of technology in them."

William DeJong

My background is a high school teacher. Ten years ago I would have been hard pressed to believe we would be embracing block-scheduling concepts today. There is also much on the horizon as far as schools within schools, breaking larger schools into smaller schools, and new interdisciplinary teaching techniques. There is a huge untapped potential for major restructuring of education that is afforded by technology. And there is no question about it, there are innovative, break-the-mold examples, but they are few and far between.

I believe to a large extent, education and the educational facility are evolving without much thought. The major issues focus on how quickly and how cheaply we can get a school building built. How to stop the leaks and seal up the buildings. Getting the funding to renovate or replace buildings. Creating the political will to address overcrowding and decaying infrastructure.

The classroom is still the box; the school is still a series of boxes. In 10 years - will or should we have developed a new box or gotten rid of the old boxes? There may be some isolated examples, but by and large in 10 years we will likely still have the same box, found new ways to rearrange the boxes, made them look better, made them more comfortable and put a lot of technology in them.

Personally, I believe this will be an incremental change process unless the new economy forces schools to change. The agrarian school responded to the agricultural economy, the current schools by and large to the industrial economy. I do not believe we have arrived at a school or educational system that responds to our current and evolving economy.

Watershed decade? I hope so, but I am also doubtful. The forces of mass production of new and renovated schools, turnover of leadership, pressure to get the job done, persons planning and designing schools with little to no experience or understanding of education, all point to minor improvements to the current mold.

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Part 2 - Heinavaara School, Urban "Have-not" Schools, Future of the Classroom

Randall Fielding: *The Heinavaara Elementary School in Finland is one of the most notable projects you have constructed since the School of Environmental Studies (SES) in Minnesota. How have your ideas evolved between the two projects?*

Bruce Jilk: The School of Environmental Studies is an optional public suburban high school for 400 students and was designed seven years ago in collaboration with HGA, Inc.[2] Heinavaara is a 190-student public elementary school in Finland north of Helsinki, near the Russian border. It was designed two years ago in collaboration with the Cuningham Group.

Heinavaara works at several levels. First of all it is designed to support the children's learning experiences. This is done by organizing the spaces to enhance the connections amongst children and their cognitive, social, emotional, physical and other developmental experiences.[3] Next, it works as part of the community's economic development. By developing new (to Finland) construction methods in wood while educating the local construction industry, the project positioned the community to be leaders in future endeavors in Finland and Russia. Next the project serves as a community center. This is true in both its functional and symbolic aspects.[4] Finally the design is embedded with meaning for a larger society. Learning takes place in the community, so community issues impact the school (Bingler 1999[5]). But the context for the community is the larger society so we need to understand this as well. Next the context for society is our civilization.[6] *(Click for Heinavaara Program and floor plan)*

Q Jeffery Lackney: *How do we address the problem of improving the quality of learning settings in have-not schools in both urban and rural areas that will not be direct recipients of the Watershed in the next 10 years?*

William DeJong: This is one of my most passionate topics, haves and have nots. I do believe that 2000 to 2010 will be the watershed decade for urban schools, assuming the economy holds up. Approximately one third of all students (approx. 17 million) attend schools in the largest 200 of the 15,800 school districts in the United States. Between 1975 and 1995 most urban school districts did not adequately maintain school facilities and most did not build a single new school or fully renovate a building. As a result there is a

huge pent-up demand in urban districts. For the past quarter century there was not the political will to address the needs of urban districts. The power had shifted from the cities to the suburbs. For the past quarter century there has been constant criticism of urban schools. As a society we have become more polarized economically (rich and poor, loss of the middle class) and we have become more racially segregated. Across the board there is recognition that something needs to be done to improve the urban schools. Part of this response has been the charter schools. Part of this will be the rebuilding of the public schools. Personally I believe urban schools will eventually evolve into a series of independent schools, actually much like the Dutch system. But until that happens, assuming a continued positive economy, the recognition of the need being so great, urban schools are shaping up to become the priority of this decade.

"...urban schools will eventually evolve into a series of independent schools, actually much like the Dutch system...urban schools are shaping up to become the priority of this decade."

William DeJong

I believe the concept that is being used in Minnesota is the way to go (due to declining enrollment, the state is emphasizing joint/community use of facilities to save costs).

In many rural communities, the definition of a successful student is a student that graduates from high school, moves away for college and never returns. This is a problem not only in developed countries but also a major problem in developing countries. It's ironic that middle-aged suburbanites have a fantasy of moving to the country while kids in the country are eager to move to the city. The bottom line: joint use of facilities, but we need to further examine how economic development fits in.

Q William Brenner: *What will happen to the classroom in the coming years? What will schools look like?*

Bruce Jilk: Will we still have classrooms? A common place where a common group of people desires to engage in a common way with a common subject at a common time will be justification for the classroom. However as we embrace lifelong learning where anybody can learn anything, anyway, at anytime and anyplace, there will be a diminished need for classrooms. The educational philosophies of Perennialism and Essentialism[7] (which rely on lectures) are deeply imbedded in our concepts of education. They grew with our current cultural view starting about 2000 BC. However, as we shift into a knowledge society these concepts will lose their cultural grounding, my best guess is that the classroom as the primary place of learning will shift to a secondary place of learning between 2020 and 2030. This is a concern when the life expectancy of new schools is around 70 years.

"my best guess is that the classroom as the primary place of learning will shift to a secondary place of learning between 2020 and 2030"

Bruce Jilk

In the very near future we will see the design of classrooms flourish like never before. This is driven by a basic feature of human nature. It is a form of "irrational exuberance." It is similar to the response people have knowing someone will die; you want to show your deepest caring. Or, in some cases, a married couple, knowing the marriage is not going well, will try to save it by exchanging extraordinary gifts. In K-12 schools this is being played out by pretending classrooms are the center of the universe. This phase will retract in 10 years. In higher education, campuses are desperate to survive as seen by the flourish of "signature" architecture. Think of these buildings as tombstones.

The question "what will schools look like in the future" is probably the most common and misunderstood aspect of what I have been working on. We talk about what is the best school design, we have conferences to discuss our ideas and we give awards to those that fit our preconceptions. If we could only

solve this problem, all would be fine! In our effort to simplify things we begin to think as if one size fits all. Most people will say they do not think this way, however the pattern is in fact there. Prototype schools are an example of this carried to the extreme. In the future, the traditional school will not be replaced by a new, better design. Rather, we are developing options to the traditional school. It was these options (alternatives) that are innovative that we focused on in Amsterdam. In the future we will continue to have traditional schools (but less of them), optional schools that are similar to traditional schools (often the case in the expansion of parochial schools) and innovative alternatives. As to what they will look like, it is safe to say that virtually any future design concept exists today, in some form, somewhere on this earth.

"Until we embrace differentiated or alternative staffing and organizational approaches we will be stuck in the box. ... we all need an office, the ability to collaborate in teams, a lap top computer, a place to workout and a coffeepot."

William DeJong

William DeJong: The box. You're right, we are not likely to get rid of it soon, but it is going to go. But it won't go until we get rid of the organizational structure as we know it today. Even if the teacher is no longer the dispenser of information and we embrace more student centered approaches, more hands-on learning, as long as we have 20-25 students to a teacher we will have 900 square foot boxes and lots of them. Until we embrace differentiated or alternative staffing and organizational approaches we will be stuck in the box.

Is there a need for the box? Yes, we all have them; we call them large conference rooms. But we all need an office, the ability to collaborate in teams, a lap top computer, a place to workout and a coffeepot. Kids are no different.We are warehousing kids because we haven't been able to come up with a better way to supervise them (along with a lot of other issues) so we try to do all of these things within the box.

We all know the student's classroom is his/her environment. It is the home, the kitchen table, the bedroom, the library, the recreation center, the street, the church, the car, the park, the radio, the TV -- wherever the student learns.

Then there is the classroom, the 900 sq. foot box. Furniture will be come more flexible, moveable, comfortable and durable. Technology will be ever present. We'll be able to create individual, small group and total group spaces. Lots of natural light and artificial lighting will be better; more attention will be paid to air quality. We'll have the ability to collaborate with the box next door and other boxes within the same area of the building. Occasionally students will even be permitted to go outside the box to another box of comparable size that has more specialized tools.

School will look like a cross between a home, an office building, a video arcade, a library, a fitness center and a food court all integrated. Students will have a sense of belonging; they will have their own offices and project areas. They will have clear objectives and a sense of accomplishment. They will be doing meaningful work in inviting environments. This multiple use of facilities and the multiple approaches to learning will necessitate diverse sizes of learning environments.

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Part 3 - Meaning of Learning, Classroom Size, Consciousness in Learning, Architect's Role, Educational Leadership

"Creating single purpose spaces (math classroom, circulation corridor) is a barrier architecture, not an enabling architecture." *Bruce Jilk*

Q Lia Burgers: *As the meaning of learning is changing from passive to active, from static to dynamic, from inside oriented to outside, to lifelong learning and to global learning, is it still necessary to create educational systems that are surrounded by institutional walls and barriers?*

Bruce Jilk: First a slight change in the question by asking "As the means of learning," which is what I think was intended. To discuss the "meaning" of learning would take us to a totally different level. Then the question asks if these changes (or expansions) are challenging the institution of education in regards to its perceived isolation.

One of the fundamental attributes of a knowledge society is the significance of connections or relationships among its elements. There is overwhelming evidence [8] of the convergence between the corporate world and the education world. The same is true for the home world. Any "walls" or "barriers" need to be examined to ensure they enable and not inhibit these connections.

These are extremely challenging times for the traditional institutions of education. We live in a culture of choice and there are many new providers. While growth in traditional schools and colleges parallels the population growth, growth in non-traditional providers is expanding at about the rate of 40 percentper year [9]. In my experience the institution of education is responding to this challenge. It is are collaborating with the new providers and even absorbing them in its world. Bottom line: no more isolation.

Q Charles H. Boney, Jr., AIA: *The typical classrooms we observed in Amsterdam were 20 to 50 percent smaller than U.S. classrooms. (For example, the elementary school with two stories of apartments above it had classrooms of 600-700 square feet; in the U.S. we would have had 950-1,100.) There were few ancillary spaces, but they made great use of corridor space for computers and book storage. Do you think our American bias toward single-purpose spaces (i.e., corridors must always be corridors, and learning only occurs in the classroom) inhibits the educational opportunities in our buildings?*

Bruce Jilk: The classroom is primarily a teaching environment and, as a design, has little to do with learning. Here learning is a byproduct. Learning environments (spaces designed with learning as the primary goal) will be multifunctional. They need to support formal learning, informal learning, and resource learning. I call

these the learning threads. The learning environment is a fabric made up of these threads. Creating single-purpose spaces (math classroom, circulation corridor) is a barrier architecture, not an enabling architecture.

Q Charles Boney: *We saw many well-maintained schools on our tours. Is this typical of The Netherlands, or did we just see the newest schools where maintenance issues have not become apparent?*

Bruce Jilk: I have been in new schools (Baku) that badly needed maintenance and old schools (Singapore) that were pristine. We can find the same variation across the United States. So the question is primarily a cultural one and this makes any short answer quite difficult. I will offer one observation. Countries (or states or communities) where society sees the "big picture" and takes a "long view" (such as The Netherlands) will nurture their resources more carefully. It's no accident that the most striking design at Expo 2000 was the Dutch pavilion. They have, in effect, designed their whole country.

"If you have a classroom that is 600 to 700 square feet and are using the corridor for storage and computers, you, in essence, are using 900 to 1000 square feet of space."

William DeJong

William DeJong: I would agree with Bruce in that space needs to be designed to support the various forms of learning that need to occur. However, your question regarding the size of the spaces and the use of corridors raises an interesting question. The United States has a very unique and often inhibiting set of building codes. Zoning laws prohibit apartment units and a school from being in the same building and likewise force single-purpose spaces. Storage and computers in a corridor is a fire marshal's pet peeve (and at times correctly so). Also, the restrictive exiting requirements have been detrimental to more open spaces. We need a much more holistic approach. We need to review some of these barriers; there are other ways to address safety issues. I'm not an architect, but in many ways codes are driving design.

If you have a classroom that is 600 to 700 square feet and are using the corridor for storage and computers, you, in essence, are using 900 to1,000 square feet of space.

Q Prakash Nair: *Do you subscribe to the traditional notion of learning as a conscious, independent activity or do you believe that learning is really a "byproduct" or an accidental outcome of some other primary activity?*

Bruce Jilk: First I need to adjust the question. Learning can be a conscious activity but not independent. Learning always has context, even if we focus on what goes on in the mind. Also the learning that goes on in the traditional classroom is mostly a byproduct of teaching, but not necessarily accidental. So I think the question is: Is learning a conscious activity or experiential? I would clearly say it is both.

Q Prakash Nair: *If the latter is true, do you believe that our schools, which are set up as primary "learning places," miss the mark altogether? In other words, have schools and school facilities as we know them become anachronisms in modern society, or will they remain viable in the future with some periodic tweaking?*

Bruce Jilk: As I've said earlier, schools in modern society are teaching environments, and as places to teach they hit the mark quite well. I've framed the discussion around the terms *industrial society* and *knowledge society*. This question frames the discussion around the terms *modern society* and, by implication, *postmodern society*. It will be constructive if we follow the latter terminology for a moment.

The postmodern concept includes the modern within it; it does not cast it out. It is the modern world plus something more. And this is my point about schools. We will still have some traditional schools (which will be forever "tweaked") plus something more. Traditional schools will become only one of many choices, not the only or even the primary option.

Q Arnie Glassberg: *What role can an architect play in helping school boards move to an understanding of the importance of school design to learning?*

Bruce Jilk: First school boards (and state governments) need to understand they are in the learning business, not the teaching business. I know I'm repeating myself, but this goes to the basic problem. Remember what happened to the railroads in the U.S.? They thought they were in the railroad business (not the transportation business). The decisions they made came from this perspective, were self-serving, and, as a result, they ended up mostly out of business.

Likewise, school boards (and teacher unions, textbook printers, school architects, etc.) need to stop making self-serving actions and behave in the interest of a learning society. Just as railroads did not go away, schools and school boards will not go away. However, just as railroads have competitors and a smaller market share, so will public school systems. Architects will be of no help until they locate themselves in the learning society. I doubt this will happen before their clients, the school systems, make this shift.

Q Arnie Glassberg: *How can an architect, as an outside party, highlight the importance of carefully examining instructional practices (and their lack of success so far) before beginning design?*

Bruce Jilk: We need to move very carefully here. Architects are not skilled in pedagogy. In the 1960s and 1970s architects seemed to be taking the lead in school design and "got ahead" of the educators. Although many good ideas came out of this, so did many

perceived failures. Ever since, school architects are suspect. Many of the 1960s and 1970s architects are retired or dead, and because there was more than a decade when very few schools were built in the U.S., we now have a "service corps" that lacks this experience and is therefore ready to repeat it.

On the other hand, as we move into the knowledge era, society is shifting its values. One of these shifts is from valuing products not only for their intrinsic qualities, but also for their symbolic qualities (Nike shoes). Creativity is basic to nurturing symbolic quality and creativity is inherent in architectural education. Architects can contribute to the discussion on instructional practice from this perspective. Until schools of education develop a strong component of creativity in their curriculum, architects may be the best resource.

William DeJong: Architects can be very constructive in helping school boards move to an understanding of the importance of school design to learning. But we need to be very careful here. Is the architect telling the client what learning should take place or how students should learn? That should be the client's job. The architect should be providing design solutions to meet the objectives established by the client. In the latter context it would be very appropriate for the architect to assume the role of providing information to the client on how this might be accomplished from a design perspective.

Many times the school board has not built a building in many years and may not be knowledgeable about all of the new design ideas and how they might impact learning. But I would suggest the architect be very careful not to assume the client's role and responsibility.

A collaborative planning and design approach usually provides the school board and the architect with the best of both worlds.

I would agree with Bruce's caution. Even when the architect has more knowledge than the client, the educator is still the client. You should find ways to enlighten the client but in the final analysis it is their decision.

Q Andy Simpson: *Knowing that new models are difficult at best to implement given constraints of facilities management, staff reluctance, local politics, and others, what is your best advice to educational leadership (superintendents, board members, and instructors) for navigating the current watershed?*

Bruce Jilk: First I would advise people buy into and follow a comprehensive process. I typically use the "Design Down" process,[10] but there are others. In addition: 1) be clear about the true purpose of the endeavor; 2) involve representatives of all stakeholders; 3) begin with the needs and expectations of the larger community; 4) agree on what is special about the project; and 5) be honest about the learner expectations.

Everyone has ownership (not just the superintendent or architect) and you can never communicate enough. Learn about other programs by visiting them. Although it is a poor substitute, if you cannot make the visits, have representatives from those programs come and visit the design/planning team.

Next, this effort needs leadership (which can come from anywhere but is best if it comes from the school system) and skilled facilitation (which can also come from anywhere but is best if it comes from outside the school system).

Finally, it is essential that everyone make decisions around what is best for the child/learner. Watch out for statements such as: "The school board won't approve," "The superintendent's job is at stake," or "This is outside the union agreement." None of these are in the primary interest of the child.

William DeJong: I couldn't agree with Bruce more. A participatory process is essential. There are a number of good techniques to accomplish this. We use what we call a "planning lab" approach. It is a multiday, interdisciplinary approach and involves a broad-based group of stakeholders. Too often I have seen projects become the sum of the parts. I believe projects need to be developed from the whole to the parts and back to the whole. They also need to focus on the future and not planning in the rearview mirror. This doesn't mean that we can't learn things from the past but it needs to be focused on learning, students and the future. I believe with the right process it doesn't take long to break the mold, but it can't be done by just having meetings with teachers once a week for an hour after school.

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Part 4: Flexibility, Risks of Innovation, Impact of Environment on Learning

"Instead of designing schools we should step back and design community." *Bruce Jilk*

Q John B. Lyons: *Currently the average age of our K-12 schools is 42 years. We know that the tempo of changes to the learning environment is increasing and that one of the hallmarks of excellent school design is adaptability. Once constructed the design is frozen in time. How can we provide the flexibility necessary without compromising the classroom environment?*

Bruce Jilk: Consistent with the question about the maintenance of Dutch schools, we need to invest our space, time, and money in a way that goes beyond just the immediate goals of any project. The way to do this is to step back and look at the bigger picture. Typically, we build schools so the physical elements will out live the functional. This functional obsolescence can manifest itself in two ways. First, the learning processes can change, and second, the need for a particular site for learning may no longer be necessary (population shift). In the first case architects have used a variety of design strategies, including movable walls, nonbearing partitions, modular mechanical and electrical systems, etc. In the second case the strategy has been to predict future use (housing, offices) and design with that in mind.

I feel both of these approaches will have limited success and do not really look at the bigger picture (they look only an alternative possibility). Instead of designing schools (or offices or housing or retail, etc.) we should step back and design community. This design strategy should include not only these components but also their relationship to each other [11]. This has not been done in modern times (except Louvain-la-Neuve)[12], so there are only historic models (Pompeii) or paper architecture [13], both of which are suspect. There are some ideas about how this infrastructure might be designed in the writings of Habraken[14] and my work in Australia [see footnote 6]. However, until we get serious about designing for community the flexibility/adaptability issue will not go away.

"Flexibility and facilities is an oxymoron." *William DeJong*

William DeJong: Flexibility and facilities is an oxymoron and yet it is a question worth exploring further. Bruce is correct when he says the physical elements will outlive the functional. Forty-two years ago would have been the late 1950s. In that era kindergarten was half day, there was no preschool, many mentally and physically challenged children were institutionalized, students went home for lunch, there were no computers, and there was little discussion of team teaching, multiage, or other current form of delivering education. The future is likely to be the same.

In the late 1980s we began addressing some of the evolving program delivery issues at the high school level. In 1990, I recall a project in Michigan where we had just finished a traditional (departmentalized) high school. It was six months prior to completion and the staff was asking if we could make some

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completion and the staff was asking if we could make some changes to make this more of an interdisciplinary high school. I told them they were $35 million late with this discussion. In the next couple of days we started planning a new high school in another Michigan school district and one in Ohio. My first question was, "how do you want to be organized?" They both said departmentally. We put together four sets of educational specifications based on the departmental, team teaching, interdisciplinary, and school-within-school concepts. We overlaid them on each other and discovered we couldn't get from the departmental approach to the others but we could get from the teamed approach to all of the others. We used the teamed approach for both buildings. One opened as a traditional departmental high school and the other with a hybrid ninth grade school within a school, teamed 10th and 11th grades, and semester-long interdisciplinary studies in the senior year. In this case flexibility meant which approach left you with the most options. The rest is history. This same story repeated itself with other planners and architects where today, 10 years later, this is a common approach that is used.

"We couldn't get from the departmental approach to the others but we could get from the teamed approach to all of the others."

Bill DeJong

Going back to a previous discussion, I don't really believe we have come up with ideas on how we plan a school today using classrooms, as we currently know them, to space concepts in which we no longer have "classrooms." The answer may lie in more demountable buildings or using more office planning concepts.

Q James LaPosta: *The question that kept occurring to me throughout the week, however, was "what if we are wrong?" There is an unfortunate history of architectural innovation in schools that failed utterly and I worry that we may be headed down that well-intentioned road again. The idea of learning spread throughout the community is appealing and well reasoned, but not six blocks from my Hartford office is a failed school project, an experiment in community-integrated learning from the 1980s that was recently replaced by a more traditional program and building. The costs of failure are so high—generations of children who only go through the system once—that we need certainty that what we do is right. How do we integrate the lessons from the past with the best thinking that the educational community can offer us?*

Bruce Jilk: I have already addressed the idea that the Amsterdam Watershed is about developing alternatives, not replacing one approach with another. This is because "what if we are wrong" if we keep things as they are (in the context of a knowledge society) which is also a legitimate question. Integral to the question is the assumption that "one size fits all." In this context the question applies both ways.

This idea of "all or nothing" is carried into other aspects of the question. Ninety percent of what we learn is learned outside of school. I hope parents do not turn their children totally over to The System. A child's learning should never be dependent upon a singular approach. An increasing number of parents do not send their children through the system at all.

So how do we learn from the past? Time for our critical thinking skills! There is no formula for this. First we need to separate what is changing from what stays the same. How we can teach is changing [15], [16]), how children learn is not (short of drugs, brain implants, and gene modifications). Learning

drugs, brain implants, and gene modifications). Learning environments should enable learning, not be a barrier to it. Therefore, the real question is, what, in the past, was an environmental barrier to learning and what enabled learning? And to further complicate things, this will vary with the mode of learning at any one time. If that is not enough, what about the individual's learning style or the appropriate group learning strategies? To learn from the past we would need to carefully document what happened, establish criteria, weigh the criteria, apply it in an objective manner and draw out meaningful patterns to inform our current concerns. A lot of work that no one cares to fund. On the more optimistic side, we should establish an ongoing post-occupancy evaluation (POE) process for all projects as they happen and collect them (like a blood bank). All this justifies a new EFL (Educational Facilities Laboratory) type foundation.

One last point on this question. We know we learn by failure. Some people say we learn best this way. Based on the fact that our schools (The System) are not the sole conduit to learning, we should not be fearful of taking risks to improve our learning environments. The greatest risk is to take no risk at all.

William DeJong: "What if we are wrong" is a serious consideration. Again Bruce is correct in that there is a need to develop alternatives. However, risks will be taken and mistakes will be made. One of the perceived mistakes was the open space schools of the late 1960s and 1970s. Part of the problem with open space schools was not training staff on how to effectively use the space. The problem was compounded in the 1970s when these buildings also became windowless structures as a result of the energy crisis. In Washington, D.C., the community and staff are demanding that over 20 open space schools be enclosed or replaced. Most of these schools are well over 200,000 square feet. One is a K-8 building and is 348,000 square feet. This is a costly problem.

"...open space schools were too open and the 1950's facilities were too enclosed." *William DeJong*

" place a marker board to define the front, send in one adult and 30 kids, and more often than not the adult will assume some form of control. Place the same people in an arcade game setting and the kids will assume control."

Bruce Jilk

In a suburban Indianapolis school district we were developing the educational specifications to guide the renovation of four elementary schools. Two of the schools were 1950s double loaded corridor buildings. Two were open space schools. The staff and parents in the double loaded corridor schools wanted the space opened up. Those in the open space building wanted them enclosed. What they were really saying was that open space schools were too open and the 1950s facilities were too enclosed. What they needed was a combination of the approaches depending on the types of learning that were to occur.

There is far more risk in just repeating the past than there is in attempting to determine the future. By attempting to determine the future we may get it wrong, but I believe if we just take the past, we already have it wrong.

Q Jose Freire da Silva: *According to his [Bruce's] experience, how important are built environments created by architects? How and in what way are those environments part of the models under consideration?*

Bruce Jilk: This is variation on the Nature verses Nurture argument. It is not an either/or condition. Both are fundamentally important. The environment (and most people experience the man/woman made environment) has a significant effect on our behavior. A basic example is the classroom. Take a roughly square, 900-space-foot space with a 10 foot ceiling, place a marker board to define the front, send in one adult and 30 kids (who have never seen each other), and more often than not the adult will assume some form of control. Place the same people in an arcade game setting and the kids will assume control. The environment influences behavior. Our knowledge of this is very limited and needs more research [17].

"How skeptical should practitioners be? Why not ask: how knowledgeable, how inquisitive, how curious, how informed, how excited, or even should they be skeptical?"

Bruce Jilk

Q Sarah Woodhead: *Your concept for high schools presented in the early 1990s was an exciting break-the-mold approach to educating high school students. In that concept, the form and the function are mutually responsive. However, in most case studies derived from that early concept, there seems to be an overstatement of the degree to which school as "center'" or institution can/should/will cease to exist. The Webster's definition I like the best for "institution" is "a significant practice, relationship or organization in a society or culture." Please comment on the role that "school" as a physical place in a community carries meaning within your work.*

Bruce Jilk: The physical place of learning in a community should be symbolic of the location (meaning) learning has in that community. If the meaning of learning in a particular society is characterized as something special, unique, controlled, elite, then it should physically reflect this (like the Parthenon). If the meaning of learning is seen as integral to all aspects in a society/organization then learning should have presence everywhere. The question implies that I promote the latter as if I know what's best. Having worked in a variety of cultures (33 countries and most states), I have learned not to advocate any preconception but to show the possibilities.

This question does bring up an important issue about community design. Although I can imagine a group of people who would be committed to being a totally homogenized society that would prefer to exist in a featureless setting, every culture I've worked in has an order to it. This implies that their communities have some form of order as well. Good community design uses the tools of paths, nodes, edges, centers, etc., to deliver on this expectation. Buildings that rise above the background and contribute to the order are called civic art [18], Krier Brothers [see reference 14].

Schools (learning centers) as well as city halls, churches, community centers, court houses, prisons (Columbus, IN) can be a part of the civic art if that is consistent with the beliefs and values of a society. However, it is wrong to assume that this is the proper role for schools (or the other building types) without due process of enquiry. One innovative alternative for schools is the idea that they are dispersed (the Dutch broad school)[19].

Q Sarah Woodhead: *Bruce, at best your ideas reflect a clear and invigorating sense of what learning should be; at worst, there is*

sometimes more than a hint of idealist tyranny that ignores many of the subtle but important patterns of human behavior. You would do away with the classroom and the school. It certainly is alluring and can work in limited circumstances. Do you ever see a danger in promoting dramatic change? Do you see your role as provocateur? How far should school architects go in adopting your approaches? How skeptical should practitioners be?

Bruce Jilk: First, one assumes I am promoting dramatic change. I do not promote anything except that people think before they act when making decisions about learning environments. To help them, I share some of the possibilities. Second, do I see my self as provocateur? This is for others to decide. I share ideas. Some people respond by giving those ideas thoughtful consideration. Others, apparently, are provoked. Third, should school architects adopt my approaches? School architects ought to be knowledgeable in the numerous possibilities out there. This is also true for school planners and educators. Knowledge is not painful. Finally, how skeptical should practitioners be? Why not ask: how knowledgeable, how inquisitive, how curious, how informed, how excited—or even, should they be skeptical?

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Part 5 - Profiles, Contacts and References

Profile: Bruce Jilk, AIA

Bruce refers to himself as "an autonomous agent"[20] and "a participant with the cybiont."[21] He is also an architect and educational planner at KKE Architects, Minneapolis, Minnesota. He has served as a speaker, architect and planner in 33 countries. The School of Environmental Studies in Apple Valley, Minnesota, planned by Bruce, received the 1999 New American High School Award by the U.S. Department of Education. He has a bachelor of architecture from the University of Minnesota. He has served as an educator at the University of Minnesota, the University of Wisconsin, Milwaukee and River Falls, Colorado State University, and the University of Syracuse.

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Profile: William DeJong

William S. DeJong, Ph.D., REFP, is one of the most recognized educational facility planners in the United States. He currently serves as chief executive officer of DeJong and Associates, Inc. DeJong and Associates consists of approximately 30 planners that develop facility master plans, strategic plans, and educational specifications for new and renovated schools throughout the United States. *"The mission of DeJong and Associates, Inc. is to create quality learning environments through comprehensive and responsible planning strategies that provide school organizations with direction, flexibility, and community ownership."*

Dr. DeJong was the president of the Council of Educational Facility Planners, International in 1993. He was recognized as the International Planner of the Year by CEFPI in 1991. He was the former executive director of the National Community Education Associations, served as the assistant executive director of CEFPI and as the director of the National Center for Community Education Facility Planning.

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Q 3: William Brenner, Director, National Clearinghouse for Educational

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Q 6: Charles H. Boney, Jr., AIA, Boney Architects/Wilmington, NC cb2@boneyarch.com

Q 7: Prakash Nair, President, Urban Educational Facilities for the 21st Century, Prakash@designshare.com

Q 8: Arnie Glassberg, San Lorenzo Unified School District, California, ARNIE@sanlorenzousd.k12.ca.us

Q 9: F. Andy Simpson, AIA, Pfluger Associates Architects, P.L.L.C., San Antonio, Texas, andy@pflugerassociates.com

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Q 11: James E. LaPosta, Jeter, Cook & Jepson Architects, Hartford, CT, laposta@jcj.com

Q 12: Jose M. Freire da Silva, Ministry of Education, Lisbon, Portugal, jmsilva@degre.min-edu.pt

Q 13: Sarah Woodhead, SHW Group, sjwoodhead@shwgroup.com

References

[1] Founded in 1993, The Club of Budapest is an international association dedicated to developing a new way of thinking and a new ethics that will help tackle the social, political, economic and ecological challenges of the 21st century. For details: http://www.club-of-budapest.org/

[2] Details on the School of Environmental Sciences (SES) can be found in Design Share's on-line library at: SES

[3] This is evident in the plan and photographs, revealing learning "houses" on the perimeter that open to a central commons with a 10-foot high fireplace. The front entry is a wooden canopy in the traditional Karelian style. The layering of space between houses and public areas, variations in ceiling height, use of color and materials all suggest responsiveness to the importance of connections amongst children and their cognitive, social, emotional and physical experiences. Details can be found in Design Share's on-line library at: Heinavaara

[4] Heinavaara serves as a community center functionally and symbolically in several ways: 1) The gymnasium, central library/media area and cafeteria are used by the community on evenings and weekends. 2) The project is located at a high point of a new residential community development; this along with the vertical proportions of the central clerestory area make it a visible focal point for the community -- much like a church in medieval city. 3) The dramatic timber entry canopy reflects the heritage of the "Karelian" building style, unique to the region.

[5] The National Clearinghouse for Educational Facilities. 1998. Schools As Centers of Community, http://www.edfacilities.org/ir/edprinciples.html

[6] Bruce discusses the various units of community and civilization in a 1998 interview. He speaks about planning two new communities in Australia: "We are building on the workstations and family/clusters, defining larger units, with terms like "enterprises," (300 to 600 people), "collaboratives," (up to 10,000 people) and the "global network," (everyone)."
http://www.designshare.com/Research/Jilk98/JilkInterview.htm

[7] Perrenialsim (a partial definition by Robert Hutchins, Mortimer Adler): "Despite differing environments, human nature remains the same everywhere; hence, education should be the same for everyone." Essentialism (a partial definition by William Bagley, Herman Horne): "Learning, of its very nature, involves hard work and often unwilling application." For more details:
http://people.morehead-st.edu/fs/w.willis/fourtheories.html

[8] Schiller, Dan.1999.*Digital Capitalism: Networking the Global Market System*. Cambridge: MIT Press.

[9] Bruce Jilk. Personal communications with Motorola personnel.

[10] Issue track published by The Council of Educational facility Planners, International. 1997.*The Design-Down Process*. http://www.cefpi.org/issue/issue6.html

[11] Alexander, Christopher. 1979. *A Timeless Way of Building*. Oxford University Press. New York

[12] Referring to a school and village in Belgium.

[13] Krier, Léon Atlantis and Johann-Karl Schmidt. 1988 (Exhibition catalogue). "Cities and landscapes are the tangible realisation of our material and spiritual worth, for good or ill. Each image we draw, each structure we build is an integral statement on how we want or don't want the entire world to be. We either work on its construction or on its destruction, we complete or we fragment it. The first rule of ecology is that we cannot do one thing in isolation" (Krier 1992).

[14] Habraken, N.J.1976. *Variations*. Cambridge: MIT Press. Variations may not be readily available, however, Habraken's latest book may be easily obtained. The Structure of the Ordinary: Form and Control in the Built Environment.

[15] Gardner, Howard. 1993. *Multiple Intelligences: The Theory In Practice*. New York: Harper Collins.

[16] Perkins, D.N. 1986.*Knowledge as Design*. Lawrence Erlbaum Associates.

[17] Shoggen, Phillip. 1989. *Behaviour Settings: A Revision and Extension of Roger G. Barker's Ecological Psychology* Stanford University Press.

[18] Hegeman, Werner and Elbert Peets.1988. *American Vitruvius: An Architect's Handbook of Civic Art*. Princeton, New Jersey: Princeton Press.

[19] "Dutch broad school" refers to schools in Holland that use community as their "learning environment."

[20] The phrase "autonomous agent" is discussed in a work by Stuart Kauffman entitled *Investigations*. 2000. New York: Oxford University Press.

[21] "A participant with the cybiont" refers to Joel de Rosnay's conception of the "cybion," a planetary macro-organism consisting of all people and machines, organisms, networks and nations. For more information, see Rosnay's latest book: *The Symbiotic Man: A New Understanding of the Organization of Life and a Vision of the Future*. 2000. New York: McGraw-Hill.